

INTERESTING CROP EXPERIMENTS

Developed at Hardinsburg by Members of the Kentucky Experiment Station and United States Department of Agriculture.

Poor Soil Was Used

General farm crop experiments have been conducted jointly by the Kentucky Experiment Station and the U. S. Department of Agriculture at Hardinsburg for the past two years. Results are rather indefinite as yet and absolute conclusions can not be drawn. However, some interesting things have been brought out and will be presented for the benefit of Breckenridge county farmers.

A poor light clay soil of a wet nature was selected in the suburbs of Hardinsburg. The field is thoroughly infested with insect pests, especially the wire worm which is particularly destructive to tobacco. The pest bores into the stalk below the surface of the ground and continues its way downward into the roots, eating out the center of the stalk. After such an attack the plants have very little vitality to grow and remain very much the same size as when transplanted. Late in the season the plants may recover to some extent and be able to make, at the best, an indifferent yield. Since the pest works entirely underground, remedies are very difficult to apply, in fact there is no known way to control it. It is noticeable this year that plats of the old meadow that were planted in some other crop and then followed by tobacco better results are obtained. The cultivation given the preceding crop seems to have the effect of ridding the soil of the pest.

On account of wet weather conditions prevailing last year and insect injuries, the yields secured from the use of fer-

tilizers were not as large as they should have been. The results of one year's work on tobacco are given for what they are worth, subsequent investigations may alter conclusions to some extent.

The experimental field consisted of two acres, one of which received air slacked lime at the rate of one ton per acre. The yield of tobacco was not materially influenced by the application of lime. The same results have been observed in our experimental fields in Christian county. A similar experiment is being conducted this year at Lexington in which an adverse effect from lime can be noticed. It seems fairly safe to say that under general conditions in Kentucky little results can be expected from the use of lime on tobacco. Experiments in Virginia tobacco fields show marked advantages from the use of lime. The function of lime in such cases seems to be to render the nitrogenous matter available. The inference should not be drawn that lime will not effect the yield of grain and clover crops especially the latter. The field is to be sown in clover and the results will be observed.

The impression is general that potash is the element most needed in tobacco production. This is perhaps due to the fact that a large amount of potash is found in the ash of the tobacco plant. The grower readily infers that this ingredient must be supplied if a large crop of tobacco is to be expected. The fact that the soil may be rich in its stores of potash is not taken into consideration. The composition of the soil rather than

the composition of the plant is the factor that influences production.

It is interesting to make a comparison of the elements when used alone, to determine which is the most needed in our soils. Dried blood was the source of ammonia or nitrogen, sulphate of potash furnished potash, and acid phosphate phosphorus. The following table gives the results from the use of the fertilizers and the increase in yield as compared with the "no fertilizer" plat.

Plat Fertilizer	Amount per A.	Yield per A.	Increase
1 Dried Blood	400 lbs.	854 lbs.	141 lbs.
2 Sulph. of potash	300 lbs.	733 lbs.	20 lbs.
3 Acid Phosphate	800 lbs.	920 lbs.	207 lbs.
4 No Fertilizer		713 lbs.	

It will be observed that potash produced an increase of only 20 pounds, while acid phosphate increased the yield 207 pounds. Some might think that the difference could be accounted for in the fact that only 200 pounds of sulphate of potash was used whereas 800 pounds of acid phosphate was applied.

The maximum amounts of both materials were used, if a greater amount of either had been applied harmful results would possibly have followed. When potash was added to acid phosphate the yield over phosphate alone was 46 pounds per acre. Sulphate of potash added to dry blood produced 40 pounds per acre less than dried blood alone. The results clearly minimize the use of potash and emphasize that of phosphates.

Some of the highest yielding plants as compared with the average of the no fertilizer plats are given in the table below.

Plat Fertilizer	Amounts per A.	Yield per A.	Increase
9 Acid Phosphate	800 lbs.		
Dried Blood	400 lbs.		
Sulphate of Potash	100 lbs.	1131 lbs.	306 lbs.
10 Acid Phosphate	600 lbs.		
Dried Blood	300 lbs.		
Sulphate of Potash	100 lbs.	1193 lbs.	425 lbs.
20 Stable Manure	5 tons	1069 lbs.	292 lbs.
Average of No. Fertilizer Plats		768 lbs.	

WHEAT EXPERIMENTS
The field tilled in tobacco last year was followed by wheat without the ad-

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ditional application of fertilizers. The plant food remaining after the tobacco crop was produced being depended upon to raise the wheat. The same comparisons will be made with wheat as were made on tobacco with reference to the elements when used alone to determine which is the more important in wheat production.

Plat Fertilizer	Amount per A.	Yield per A.	Increase
1 Dried Blood	400 lbs.	16.4 bu.	2.6 bu.
2 Sulphate of Potash	300 lbs.	16.5 bu.	2.7 bu.
3 Acid Phosphate	800 lbs.	18.6 bu.	4.8 bu.
4 No Fertilizer		13.8 bu.	

The results favor the use of phosphates for wheat as well as tobacco. When sulphate of potash was added to acid phosphate the yield was 18.1 bushels per acre. Acid phosphate and dried blood gave a yield of 17.6. It will be noticed that neither element added to acid phosphate was quite able to equal the phosphate alone. However, applications of all three elements returned yields practically equal to phosphates alone. The following table gives the yield of some of the best plats in comparison with plats receiving no fertilizer.

Plat Fertilizer	Amount per A.	Yield per A.	Increase
3 Acid Phosphate	800 lbs.	18.6 bu.	5.1 bu.
9 Acid Phosphate	800 lbs.		
Dried Blood	400 lbs.		
Sulphate of Potash	100 lbs.	18.5 bu.	5.0 bu.
20 Stable Manure	5 tons	17.5 bu.	4.0 bu.
Average of No. Fertilizer Plats		13.5 bu.	

The wheat was of excellent quality, the grain was large and of a amber red color. Samples from each plat with their respective yields are on exhibition at Kincheloe's drug store in Hardinsburg.

The difference in the appearance of the wheats while growing in the field was quiet marked at times. The phosphate plats produced a much lighter, paler colored straw than the plats receiving dried blood, potash or no fertilizer. Many inferred that the yield would not be so good on these on account of such color, but the final results did not bear out the idea. Where dried blood, on ammonia or nitrogenous fertilizer was used, a very dark, rich green straw was produced, but this feature seemed to have no particular relation to high yield.

Colt Show

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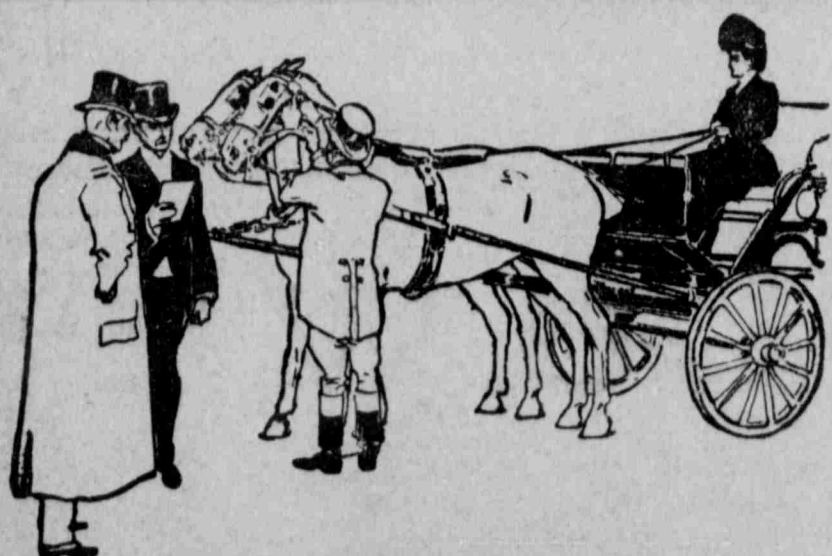
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